

REMARKS

Summary

Claims 1-13 were pending. Claims 1-9 were allowed and Claims 10-13 were rejected in the Office action. Claim 10 has been amended. New Claims 14-16 have been introduced. No new matter has been introduced. Claims 1-16 are pending after entry of this amendment.

Claim Rejections

35 U.S.C. § 103 (a)

Claims 10-13 were rejected as being unpatentable over the prior art (Fig. 3) as discussed in the Background of the Invention of the present application.

Claim 10 has been amended to recite, *inter alia*, the first and second circuit elements are semiconductor devices, and the circuit elements are maintained in one of a conductive and a non-conductive state, depending on the state of the semiconductor switch, the conductive or non-conductive state being independent of amplitudes of the television signal and the amplified television signal.

In the background discussion of the present application, a circuit arrangement is illustrated (Fig. 3) where, in one state of the switch 36, a high-level voltage is applied to cathodes, but not to the anodes (page 3, lines 22-23) and the diode is effectively deactivated (or turned off). However, a DC voltage is not applied to each of the anodes at this time, and the anodes are thus actually left floating. Fig. 3 is a composite circuit diagram illustrating both the DC and AC circuits. The DC behavior is more clearly shown in Fig. 4, where only the DC circuit paths are shown (page 11, lines 7-8; even in this case, the actual power supply connections to B and to semiconductor amplifier 38 are, as is conventional, not shown). The anode of diode 33f is connected through resistor 37 to a terminal of switch 36. Switch 36 is connected to terminal B through which a voltage is supplied. In the state of the switch shown, the voltage applied to terminal B is applied to the cathode of diode 33f through a resistive divider consisting of

resistors 35 and 34. Thus, when a positive voltage is applied to terminal B, in the illustrated state of the switch, a positive voltage is applied to the cathode of diode 33f. For DC signals this would appear to result in a back biased condition, however, the anode of the diode 33f is seen to be connected to the second of the output terminals of switch 36, where there is no voltage applied. Hence, is no voltage applied to the anode of diode 33f, nor is anode connected to the ground return. Consequently, a DC reverse voltage is not applied across the diode 33f and the diode is actually floating. While there is no DC current flow under the condition where there is no television signal, the situation changes when a television signal (an AC signal) is also present across the diode 33f, as is the situation shown in Fig. 3, where a television signal is input to terminal 1. When a sufficiently high amplitude television signal is inputted, the switching diodes (33f, 39i and 39k) conduct current during portions of the AC signal cycle, acting as rectifiers and generating distortion (page 4, line 24 through page 5, line 3). While this discussion is in terms of a television signal, it should be understood that a multiplicity of television signals or other radio signals are input to the tuner when the tuner is in use and connected to an antenna or other source of radio frequency signals.

The situation described differs from the arrangement of amended Claim 10 where the circuit elements are maintained in either a conductive or a non-conductive state, independent of the amplitude of the television signal or the amplified television signal. In an example, shown in Fig. 1 as a composite AC and DC circuit, the DC connections can be more clearly seen in Fig. 2. Now, in a state where the transistor 7 is conductive, a positive voltage is applied to the anode of diode 3f, such that the diode is in a forward-biased state, and a path to ground exists from the cathode through a resistor 6 and the transistor 7 to ground. When the transistor 7 is not conductive, the voltage applied to the anode of diode 3f is established by dividing the voltage applied at B, in the resistive divider comprising resistors 4 and 5, while the cathode of diode 3f is pulled up to the voltage B through the resistors 6 and 7c. In this state, a DC back bias is established as a specific voltage difference across the diode 3f, and the diode is maintained in non-conductive state. In the circuit of Fig. 1, the AC and DC signals are combined, and at the anode of diode 3f, it is a superposition of the AC and DC signals that should be considered. When the diode 3f is back biased, the AC signal coupled to

the tuner through terminal 1 does not cause current to flow in the diode 3f, and rectification does not occur. As the device described in the background section does not have this characteristic, the arrangement of Claim 10 is not taught or suggested, and Claim 10 is therefore allowable.

Claims 11-13 and new Claims 14-16 are claims dependent on an allowable base claim and are, without more, allowable.

New Claims

New Claims 14-16 are introduced, which further detail the subject matter that the inventors are entitled to claim.

Interview Summary

An interview with Examiner Desir was held on August 17, 2004, by Anthony Curtis, Sid Bennett, and Kiyoshi Takeda (Mr. Takeda is a representative of the assignee). The distinction of Claim 10 over the background section of the application was discussed, and the Applicant's representatives pointed out the differences between Fig. 3 ("prior art") and Fig. 1. Claim 10 has been further amended to reflect this, as has been described above. The Applicant's representatives express their appreciation to the Examiner for the discussion.

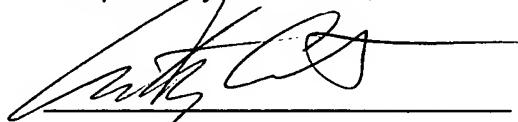
Conclusion

Claim 10 has been amended. Claims 1-16 are now pending.

In view of the amendments, and for at least the reasons given above, the Applicant respectfully submits that the pending claims are allowable.

The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite consideration of the application.

Respectfully submitted,



Anthony P. Curtis, Ph.D.

Registration No. 46,193
Agent for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200